عنوان مقاله:

Optimal sizing of electricity supply components in an Iranian smart home considering load and power generation prediction by machine learning

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خلاصه مقاله:

Today, managing power systems alongside the renewable energy resources in order to minimize the cost and maximize the efficiency is increasingly noticed. In this way, Buildings which are known as end-users, play very important role in this sort of problems. In addition to smoothing the power system tension at the peak times, they can decrease their bill cost by optimal sizing the power supply components. Also, to obtain valuable results, a precise prediction of power production and consumption can be very effective. In this paper, a new model is discussed to gain optimal sizing of solar cells and batteries in corporation with power grid in an Iranian smart home. To forecast the hourly power consumption and the amount of photovoltaic generation, the benefits of machine learning have been applied. The results show that the proposed model has positive effects on the end-user' electricity cost and power system tension reduction.

کلمات کلیدی:

Smart home, optimal sizing, machine learning, minimizing electricity cost, renewable energy resources, and photovoltaic power